RADIO NAVIGATIONAL AIDS

Publication No. 117

2014 Edition

Prepared and published by the
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

Springfield, VA

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WARNING ON USE OF FLOATING AIDS TO NAVIGATION TO FIX A NAVIGATIONAL POSITION

The aids to navigation depicted on charts comprise a system consisting of fixed and floating aids with varying degrees of reliability. Therefore, prudent mariners will not rely solely on any single aid to navigation, particularly a floating aid.

The buoy symbol is used to indicate the approximate position of the buoy body and the sinker which secures the buoy to the seabed. The approximate position is used because of practical limitations in positioning and maintaining buoys and their sinkers in precise geographical locations. These limitations include, but are not limited to, inherent imprecisions in position fixing methods, prevailing atmospheric and sea conditions, the slope of and the material making up the seabed, the fact that buoys are moored to sinkers by varying lengths of chain, and the fact that buoy and/or sinker positions are not under continuous surveillance but are normally checked only during periodic maintenance visits which often occur more than a year apart. The position of the buoy body can be expected to shift inside and outside the charting symbol due to the forces of nature. The mariner is also cautioned that buoys are liable to be carried away, shifted, capsized, sunk, etc. Lighted buoys may be extinguished or sound signals may not function as the result of ice or other natural causes, collisions, or other accidents.

For the foregoing reasons, a prudent mariner must not rely completely upon the position or operation of floating aids to navigation, but will also utilize bearings from fixed objects and aids to navigation on shore. Further, a vessel attempting to pass close aboard always risks collision with a yawing buoy or with the obstruction the buoy marks.

PREFACE

The 2014 edition of Pub. 117, Radio Navigational Aids, is a list of selected worldwide stations which provide electronic services to the mariner. This edition cancels all previous editions of Pub. 117. The listing is divided into chapters according to the nature of the service performed by the stations. The first numeral (hundreds digit) of section numbers of text and the first numeral (thousands digit) of station numbers correspond to the chapter number.

Radiobeacons, the only category of radio navigational aids not listed in this book, are grouped geographically and carried in the NGA Lists of Lights, Pub. 110 - 116.

Times quoted herein are, unless otherwise stated, in Coordinated Universal Time (UTC) and hours are reckoned from 0000 to 2359.

All bearings are true and are measured in degrees clockwise from 000° (true north) to 359°. The sectors of radio direction finder stations are given as looking from the station to seaward in accordance with international practice; it should be noted that this is the reverse of the method used in the light lists for expressing the sectors of lights.

Distances are reckoned in nautical miles unless otherwise stated.

When the term "plain language" is used in the description of the services rendered by a station, it signifies that the service is in the language of the country controlling the station, unless stated to be otherwise.

The hertz is the unit for the operating frequencies of communications-electronics equipment. Frequencies will normally be expressed as follows:

(1) In kilohertz (kHz) up to and including 300 kHz.
(2) In megahertz (MHz) up to and including 300 MHz.
(3) In gigahertz (GHz) up to and including 300 GHz.
Note: In practice, kilohertz may be used up to 30,000 kHz.

Nothing in the manner of presentation or arrangement of information in this publication implies endorsement or acceptance by NGA in matters affecting the status and boundaries of states and territories.

This edition contains information available to the National Geospatial-Intelligence Agency up to 13 December 2014, including Notice to Mariners No. 50 of 2014. Important information to amend material in this publication is available as a Publication Data Update (PDU) from the NGA Maritime Safety Information web site.

NGA Maritime Safety Information Website
http://msi.nga.mil/NGAPortal/MSI.portal

Mariners and other users are requested to forward new or corrective information useful to this publication to:

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CAUTION

Plans for air defense of the United States may require temporary suspension of the operations of certain electronic aids to navigation with little or no advance notice.

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THE NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY MARITIME SAFETY WEBSITE

The National Geospatial-Intelligence Agency (NGA) Maritime Safety Website provides worldwide remote query access to extensive menus of maritime safety information 24 hours a day.

Databases made available for access, query and download include Chart Corrections, Publication Corrections, NGA/DLIS Catalog Corrections, Chart and Publication Reference Data (current edition number, dates, title, scale), NGA List of Lights, USCG Light Lists, WorldWide Navigational Warning Service (WWNWS) Broadcast Warnings, Maritime Administration (MARAD) Advisories, Department of State Special Warnings, Mobile Offshore Drilling Units (MODUs), Anti-Shipping Activity Messages (ASAMs), World Port Index, and Radio Navigational Aids. Publications that are also made available as PDF files include the U.S. Notice to Mariners, U.S. Chart No. 1, The American Practical Navigator (Bowditch), International Code of Signals, Radio Navigational Aids, World Port Index, Distances Between Ports, Sight Reduction Tables for Marine and Air Navigation, and the Radar Navigation and Maneuvering Board Manual.

The Maritime Safety Website can be accessed via the NGA Homepage (http://www.nga.mil) or directly at http://www.msi.nga.mil/NGAPortal/MSI.portal. Any questions concerning the Maritime Safety Website should be directed to:

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TABLE OF SYMBOLS

LEGEND

Example:	A	1	A
	(1)	(2)	(3)

(1) Type of modulation of the main carrier:

A	Double sideband
F	Frequency modulation
G	Phase modulation
H	Single sideband (full carrier)
J	Single sideband (suppressed carrier)
N	Emission of unmodulated carrier
R	Single sideband (reduced or variable level carrier)

(2) Nature of signal(s) modulating the main carrier:

0	No modulating signal
1	Single channel containing quantized/digital information without modulating subcarrier, excluding time division multiplex
2	Single channel containing quantized/digital information with modulating subcarrier, excluding time division multiplex
3	Single channel containing analog information
9	Multiple channels, separately containing quantized/digital information and analog information

(3) Type of information to be transmitted. “Information” does not include information of a constant, unvarying nature, such as provided by standard frequency emissions, continuous wave and pulse radars, etc.:

A	Telegraphy (aural reception)
B	Telegraphy (automatic reception)
C	Facsimile
D	Data transmission, telemetry, telecommand Note: With 6 kHz, EDW operation in the bands below 30 MHz allocated exclusively for maritime mobile service (FC, MO)
E	Telephony (including sound broadcasting)
N	No information transmitted
W	Telegraphy and telephony

AMPLITUDE MODULATION

A1A	Continuous wave telegraphy, Morse code
A2A	Telegraphy by on/off keying of tone-modulated carrier, Morse code: double sideband
A3E	Radiotelephony using amplitude modulation: double sideband
A3C	Facsimile
A9W	Composite emission of telegraphy and telephony: double sideband
G1D	Data transmission
G3E	Radiotelephony
H2A	Telegraphy by on/off keying of tone-modulated carrier
H2B	Selective calling using sequential single frequency code
H3E	Radiotelephony: single sideband, full carrier
J2D	Data transmission: single sideband, suppressed carrier
J3C	Facsimile: single sideband, suppressed carrier
J3E	Radiotelephony using amplitude modulation: single sideband, suppressed carrier
N0N	Unmodulated continuous wave emission
R3E	Radiotelephony

FREQUENCY (or PHASE) MODULATION:

F1B	Narrow band direct printing (NBDP); Radioteletype
F2A	Telegraphy by on/off keying of tone-modulated carrier
F3C	Facsimile
F3E	Radiotelephony using frequency modulation

Pulse Modulation:
kHz = kilohertz
MHz = megahertz
GHz = gigahertz

TERMS AND ABBREVIATIONS

AOR-E	Atlantic Ocean Region-East
AOR-W	Atlantic Ocean Region-West
CES	Coast Earth Station
DSC	Digital Selective Calling
EPIRB	Emergency position-indicating radio beacon
GEOLUT	Local user terminal in a GEOSAR system
GEOSAR	Geostationary satellite system for SAR
HF	High Frequency
IOR	Indian Ocean Region
LEOLUT	Local user terminal in a LEOSAR system
LEOSAR	Low Earth Orbit satellite system for SAR
LUT	COSPAS-SARSAT Local User Terminal
MCC	COSPAS-SARSAT Mission Control Center
MF	Medium Frequency
MRCC	Maritime Rescue Co-ordination Center
MRSC	Maritime Rescue Sub-Center
NBDP	Narrow band direct printing
NCS	Network Coordinating Station
N.I.	No Information
NM	Nautical Miles
POR	Pacific Ocean Region
RCC	Rescue Coordination Center
Rx	Receiver
SAR	Search and rescue
Tx	Transmitter
UTC	Coordinated Universal Time